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LIST OF DISCUSSION ISSUES FOR BREAKOUT SESSIONS

WATER QUALITY CRITERIA/STANDARDS ISSUES

1. Narrative vs. numeric WET criteria:

1) With respect to WET: 1) Should EPA guidance clarify that State and Tribal WET criteria can be written as narrative with implementation procedures (e.g., no toxics in toxic amounts) or numeric (e.g., 1.0 TUc, chronic toxic unit), or on a case-specific basis?

2) Should different segments of a waterbody have different water quality standards, which vary in criteria or beneficial uses?

3) How should toxicity, which does not cause an exceedance of a water quality standard, be addressed?

2. Duration, frequency and magnitude criteria components:

1) With respect to WET: 1) Are the current criteria protective for saltwater, estuarine, intermittent or variable flow discharges? How should these factors be considered in criteria development (e.g., should duration of the criteria be made consistent with the exposure period used in the tests and permit limits?).

2) Since most chronic test durations have become abbreviated from 30 to 7 days, should the acute and chronic toxicity criteria be re-defined to be made consistent with the toxicity test method frequency?

3) Should EPA re-evaluate the toxic unit definitions, data supporting the one hour duration period for acute criteria and the once in 3 year exceedance frequency exposure and re-emphasize support of inhibition concentration response (IC25) in determining test results.

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3. Flexibility vs. consistency in WET criteria:

1) Where is the balance between flexibility and consistency in the application of WET criteria?

2) Is it necessary for test species to be indigenous to the receiving water?

3) Is it appropriate to allow testing with resident species (considering species-specific sensitivity to classes of toxicants) and appropriate designated uses?

4) Is there flexibility in conducting a reasonable potential analysis for WET?

4. Independent Application Policy:

1) What options are there for using WET as an indicator of water quality?

2) What options are available for consideration of "weight-of-evidence" instead of independent applicability of biological assessments, WET results, and chemical analyses?

3) What does the data show with respect to WET tests predicting in-stream effects in waters having low chronic toxicity or in waters that are effluent dependent?

EXPOSURE ASSUMPTION ISSUES

1. WET-specific exposure issues: Identify issues that are specific to WET as opposed to those that are in common for other parameters (e.g., exposure assumptions may be difficult for storm water discharges or for characterizing ephemeral streams)?

2. Critical flows and modeling inputs: What critical flows and types of models (e.g., dynamic models for ocean discharges) should be used in assessing exposure and beneficial use designation?

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3. Application of mixing zones for WET: What are the applications (e.g., critical flows) and limitations for WET mixing zones in saltwater, freshwater, storm events, and flash floods? Should WET criteria be applied at the end-of-pipe? Under what circumstances is it appropriate to apply WET criteria at the end-of-pipe instead of allowing a mixing zone?

4. Balancing exposure assumptions with test duration: Is it necessary that toxicity test method duration match expected the criteria exposure duration?

5. Balancing test method dilution water with receiving water characteristics: 1) What test species should be used when testing a freshwater discharge to an estuarine water body, especially when testing at high effluent concentrations? (Sometimes ionic imbalances can contribute to the observed WET toxicity.) 2) Will EPA reconsider the use of synthetic water which lacks the hardness, organic content, and other attenuating capacities of natural, upstream water? 3) Should test methods be conducted to take into account site-specific factors, such as ionic characteristics of receiving water?

NPDES Permit issues

1. Expression of WET limits: 1)How should WET test method variability be addressed or accounted for when reporting WET test results? 2) Should permit limits be expressed in terms of toxicity units (e.g., TUa, TUc) or should percentage of effluent (e.g., must meet at 75% effluent) be used? 3) Can permit limits account for toxic effects of ionic imbalance? 4) Should the averaging period for WET limits be consistent with the exposure period of the tests (e.g., acute WET as a 48-hour average rather than a daily maximum) or should EPA increase daily maximums to compensate for the shorter exposure period? 5) Are acute toxicity end-of-pipe limits at 1.0 acute toxic unit (TUa) or greater scientifically valid? 6) Do magnitude and exposure assumptions (e.g., 7Q10 flows vs. continuous flows or Monte Carlo models) used to develop limits reflect actual exposure? 7) How are WET limits applied to effluents discharging into intermittent and effluent-dominated streams? 8) Should permits in arid areas monitor only for acute effects if chronic limits are inappropriate and the flow is beneficial?

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2. Fair notice in permit: 1) Should permits contain specific language stating what the permittee needs do to comply with the permit requirements (vs. providing cites to regulations)? 2) How much detail is desirable? 3) Can EPA change the discharge monitoring report with respect to the certification that WET test results are accurate, because "there is no true value [in WET tests] from which to measure deviations and to determine bias or accuracy (54 FR 50218)?"

3. Re-evaluate/define reasonable potential determinations: 1) Do small data sets critically affect the flexibility available for conducting a reasonable potential analysis? 2) Are there alternative method detection levels/quantitation levels for WET test methods which can be used in reasonable potential determinations? 3) Will reasonable potential determinations eliminate setting permit limits for water quality not limited to discharge quality?

4. Water conservation leading to toxicity - conflicting environmental goals: How should conflicting environmental goals be reconciled? For example, water conservation is not encouraged with end-of-pipe limits.

5. Tiered procedures for TRE/TIEs - cross-over to enforcement: 1) Can EPA provide guidance on when to set permit limits, establish monitoring, and begin TIE/TREs? 2) How could EPA address inconclusive TIEs/TREs? 3) Should permits only require a trigger for further testing or conducting a TIE/TRE instead of penalties? 4) Should the test species used in the toxicity identification evaluations (TIEs) or toxicity reduction evaluations (TREs) be the same test species used for NPDES compliance testing? 5) Should TIE and TRE procedures only use methods with standard and/or codified guidelines?

6. Low chronic toxicity: 1) Since many discharges have improved the quality of their discharges, the focus is moving from acute to chronic toxicity. Can EPA identify procedures to determine when apparent exceedences are caused by test variation and treatment plant fluctuations (effluent variability) and procedures for TIEs/TREs to identify and remove toxicants? 2) Evaluate whether the NOEC level may be set at > 90% effluent? 3) Can chronic WET tests be used as a monitoring trigger for increased monitoring and conducting a TIE/TRE as opposed to a permit limit? 4) What are the technical limits of TIE/TRE in reducing chronic toxicity to acceptable levels?

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7. Ubiquitous pollutants: What are effective ways in the permit process to deal with ubiquitous pollutants (e.g., diazinon, chlorpyrifos) that have been identified in the TRE/TIE process?

8. EPA-approved chemicals causing toxicity:
1) How could the approval process for pesticides and other chemicals (e.g., treatment additives) be reconciled with the permitting process? 2) Can permit limits for total dissolved solids or chlorides replace a WET limit when common salts are the toxicants?

9. Correlate permit limits to exposure assumptions: 1) How could permit limits be more realistically linked to exposure assumptions? 2) Can EPA encourage wider use of available exposure models? Can WET limits have mixing zones to reflect allowable dilution?

10. IU WET limits to POTWs: Should WET limits be applied to industrial users (IUs), and if so, how can test results account for downstream POTW treatment processes?

11. Reevaluation of toxic units: Which statistical endpoint is best for expressing toxicity (e.g., no observed effect concentration or effect concentration? What allowed effect or inhibition concentration (e.g., IC25) is appropriate?

12. Analytical variability in reporting (quantitation/detection issues): 1) What are the best and technically available ways to deal with test variability? 2) Are there options for addressing test-specific inter-laboratory variability in order to account for test variability in permit limits?

13. Application of test methods in permits: 1) Are non-lethal chronic endpoints equivalent to acute endpoints? 2) Is it possible to either establish test precision criteria for test methods or determine the lowest reliable level response? 3) Can EPA methods specify culture media in order to improve the health of cultures and reliable endpoints? 4) Can EPA determine the accuracy of all WET test methods? 5) How does EPA justify the Selenastrum 4-day growth test use of EDTA except in tests with metals present? If algal growth test results cannot predict toxicity in a reservoir, will EPA restrict use of certain test species in large water bodies? 6) How to address toxicity caused by artifacts of the test methods. 7) How should WET testing be conducted when in-stream conditions differ substantially from WET toxicity test methods (e.g., temperature, hardness)?

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Compliance and Enforcement Issues

1. Single exceedance: 1) Are there alternatives for dealing with a single test failure that results in a WET limit exceedance (e.g., further testing and TIE/TRE where appropriate, as agreed to by regulatory agencies and permittees)? 2) Can EPA evaluate the Pellston findings that concluded that usually episodic exceedances (especially one chronic test failure) would not impact the receiving system? 3) Will one violation be subject to enforcement actions?

2. Inconclusive TRE/TIEs: 1) How should inconclusive (i.e., no sources of toxicity identified) TRE/TIEs be treated by regulatory authorities? 2) Should more guidance be given on what is an acceptable TIE/TRE? 3) Should a pattern of toxicity be observed before compliance actions are initiated? 4) How should low level chronic toxicity be addressed when conducting a TIE?

3. Test/data variability in determining compliance: 1) How should EPA consider data variability when determining compliance (especially since laboratories with low test variability are more likely to detect test failure)? 2) For a LC50 value greater than 100 percent effluent, how should compliance determined? 3) Should EPA provide a laboratory certification for WET testing and a more rigorous test acceptance criteria program?

4. Fair notice (cross over w/permits). How should permits be written to bring closure to (successful/unsuccessful) TIE/TREs?

5. "Good actor" relief in TIE/TRE: When WET limits continue to be exceeded while TIE/TRE is being conducted, is the permittee subject to enforcement action?

6. Ability to track permit conditions: Narrative limits could be viewed differently than numeric limits.

7. Treatment chemicals causing toxicity: How can compliance determinations account for use of EPA-registered pesticides or common salts causing ionic imbalance toxic effects from salinity?

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I. WATER QUALITY CRITERIA AND STANDARDS BREAKOUT SESSION

Issues' relative priority

Priority 1 = Issue #4: Independent Applicability

<u>Questions to be addressed</u>

1. What toxicity testing options are there as a WQ indicator?

- effluent screen tool for determination of "reasonable potential"
- pass/fail NPDES effluent permit limit (group did not prefer)
- effluent/ambient general monitoring use/screening tool
- effluent monitoring trigger for TIE/TRE
- effluent trigger for chemical concentration limit
- trigger for ambient testing

Question was raised about the order of the above options, i.e., should the above options be arranged in tiered approach?

Option 1: Tiered approach (acute and chronic toxicity)

Select screening organisms
Screen for a reasonable potential of toxicity
Trigger ambient testing
Investigate additional tests if necessary
If toxicity occurs, increased monitoring may be required
Conduct regular monitoring if effluent is toxic
Conduct TIRE (TIE/TRE) if necessary

Option 2: Non-tiered approach

Option 3: Lethal Effects

Option 4: Other tiered approaches should be considered

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2. What options are available for "weight-of -evidence" approach instead?

Option 1: Allow permit writer authority to implement weight of evidence approach. Develop a regional approach to weight of evidence.

Option 2: Allow permittee to develop weight of evidence approach for regulatory agency to consider.

Option 3: Allow permit writer and permittee to work together on the weight of evidence approach.

Option 4: Consider bioavailibility using relevant measurements.

Option 5: Consider synergistic and antagonistic effects.

Option 6: What forms and how much data are necessary for weight of evidence. There has to be a good level of confidence in the data. Sufficient data need to be collected in order to develop trends. Consider the following: types of measurements, data quality, amount of data, confidence of conclusions, and trend analysis.

Option 7: Consider role of bioassessment and integrated approaches.

Option 8: Develop meaningful bioassessments.

Option 9: Increase monitoring if necessary.

Option 10: Develop better tools to increase accuracy of WET tests. Do we need to consider certification programs for laboratories who conduct tests? Better or continuing QA/QC.

Option 11: Develop field testing that can be used as an alternative to WET testing; develop better in situ testing procedures.

Option 12: Integrate bioaccumulation procedures in weight of evidence approach.

3. What does the data show re: WET predictions on in-stream effects with low chronic

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toxicity or effluent dominated? Added: What are additional research needs and how would such data be used?

Option 1: Conduct additional studies on the relationship of WET tests and in-stream toxicity where relatively low toxicity occurs.

Option 2: Develop methods detection limits for WET tests similar to those for chemical analysis.

Option 3: Acknowledge that in may cases there is no correlation between WET tests and in-stream toxicity. A case may be made in an effluent dominated steam.

Option 4: Should pass/fail limits be used for low to moderate toxicity?

Option 5: Develop guidance for artificial toxicity; e.g., ammonia toxicity caused by temperature and pH.

4. Added: clarify how to measure chlorine toxicity verses WET. Should metals criteria be used to measure compliance?

Option 1: Run WET test before chlorination.

Option 2: Run WET test after chlorination (this is already required in the effluent toxicity test method manual).

Option 3: Run WET after dechlorination.

Option 4: Give permitting agencies flexibility in using WET tools voice chemical-specific testing.

Option 5: There needs to be a method to determine precision and accuracy in WET tests.

Option 6: Develop varieties of WET test using indigenous species.

Option 7: Use weight of evidence to handle problematic issues.

5. How should confidence (broadly) for bioassessment data be determined?

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Should a requisite level of confidence be achieved before "weight-of-evidence" be pursued?

Discussed in 4.2 and 4.3

Priority 2 = Flexibility voice consistency in WET criteria?

Questions:

1. Where is the balance between flexibility and consistency in the application of WET criteria?

   Option 1: Be consistent in goals for water bodies and measures of success and how to attain goals.

   Option 2: Use appropriate mixing zone and ZID to obtain no toxics in toxic amounts.

   Option 3: Use appropriate permit requirements to achieve no toxics in toxic amounts.

   Option 4: Be flexible in the goals for water bodies and how to attain them.

   Option 5: Refine aquatic use designations for streams and develop appropriate toxicity criteria for the use.

   Option 6: EPA should consistently apply test of scientific acceptability to propose requirements that are more or less stringent than EPA guidance.

   Option 7: There should be consistency in EPA decision making between states.

   Option 8: Work with EPA in identifying areas that need improvement in WET toxicity testing methods.

   Option 9: Flexibility to use rapid screening methods (Flexibility already exists).

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2. Advantages or disadvantages of testing indigenous to the receiving water?

Option 1: Non-indigenous species may be cheaper.

Option 2: Some permittees like consistency and reliability.

Option 3: Use of indigenous species in tests are best measure of effects to indigenous species.

Option 4: Use standard species at screening stage.

Option 5: Standard species are sensitive enough to protect most waters.

Options 6: Chose appropriately sensitive test species.

Option 7: Establish selection criteria for non-standard organisms and approval requirements for test methods.

Option 8: Explore hierarchy of species to be used in more/less protected waters.

Option 9: Rank sensitivity of species relative to standard species on an ecosystem basis.

Option 10: Allow flexibility to use appropriate, technically reliable species.

Option 11: Develop standard method to ascertain sensitivity.

3. Is it appropriate to allow testing with resident species (considering species-species sensitivity to classes of toxicants) and appropriate designated uses?

[Resident species are those that live for some portion of their life in a waterbody. Indigenous species include extinct, similar suitable habitat, etc.]

Option 1: Consider whether the goal is to protect resident species, indigenous species, etc.

Option 2: Do not use resident species.

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Option 3: Use resident species when the represent the desired specified and level of sensitivity.

Option 4: Consider protection of resident species as part of risk management. decisions and as part of designated use decisions (for a waterbody).

Option 5: Differentiate between protection of existing use and achieving goals that may not be attainable.

Option 6: Integrate use attainability analysis into WET.

Option 7: Improve methods for use attainability analysis.

Option 8: Consider test endpoint issues.

Option 9: Identify and investigate other methods of developing test relevance (sensitivity, test species, test endpoint (e.g., survival verses reproduction), temperature, test conditions, artifacts, etc.

Option 10: Match sensitivity of toxicity criteria to desired level of aquatic life protection.

Option 11: Develop guidance on battery of test approaches, and on species similarities.

4. Is there flexibility in conducting a reasonable potential analysis for WET?

Option 1: No effluent limits after an interval of successful testing.

Option 2: Conduct 1 WET test.

Option 3: As a monitoring-only requirement --before it becomes an effluent limit (essentially this is current EPA guidance quarterly monitoring with 3 species minimum).

Option 4: Consider dilution available in the receiving water (current standards requirement if state allows consideration of dilution) other than 7Q10 levels.

Option 5: Demonstrate no reasonable potential by success of pretreatment program and by constructing special facilities.

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Option 6: Look at field data (including bioassessment information) -- use the weight-of evidence approach.

Option 7: Consider habitat limitations.

Option 8: Evaluate definition of reasonable potential.

Priority 3 = Narrative verses numeric WET criteria?

1. Should EPA guidance clarify that state and tribal WET criteria can be written as narrative with implementation procedures (e.g., "no toxics in toxic amounts") or numeric (e.g., 1 TUc) or on a case-by-case specific basis?

Option 1: YES. With a tiered implementation procedure (when reasonable potential is shown).

Option 2: A numeric criterion can impede the implementation of a weight-of-evidence approach or use of flexibility. (Blocker?) [also part of Question 3.4] Blocker could be eliminated by altering regulation on reasonable potential which now allows some types of NPDES limits to be valued more than others.

Option 3: Use of TMDLs will help with determination of reasonable potential and identify needs for any WET limit (via wasteload allocation calculations).

Option 4: Should test variability be a factor in reasonable potential determinations?

Option 5: Numeric criteria can still be used.

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2. Should different segments of a waterbody have different water quality standards, which vary in criteria or beneficial uses?

   Option 1: YES. (Limit of 1 TUc negates ability to use different standards- so it could only be done via narrative standards) national uniform toxicity standard with identical components that apply everywhere

   Option 2: YES, a national uniform standard, but methods to attain can vary.

   Option 3: YES, have criteria for subcategories of aquatic life use to be selected as appropriate for waterbody segments.

   Option 4: YES, with site-specific criteria use the relevant test for selected level of protection/community.

3. How should toxicity, which does not cause an exceedance of a water quality standard, be addressed? (Rephrased as: toxicity observed within chemical-specific limits?)

   Option 1: With measurable toxicity, but no chemical limit exceedances then use tiered- approach to determine reasonable potential via weight-of-evidence approach.

   Option 2: With measurable toxicity but no reasonable potential, then no problem

   Option 3: With measurable toxicity and examination of ambient conditions (e.g., dilution capacity of receiving water) use the weight-of-evidence approach again.

   <u>**clarification (option 4-5)</u>: the concept of excessive toxicity is when toxicity is at a level where an in-stream effect will not be tolerated > 1TUc) voice laboratory results. "Toxicity" is beyond the limitation of the selected endpoints. Bioequivalents value uncertain.

Priority #4 = Duration, frequency, and magnitude components

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II. WHOLE EFFLUENT TOXICITY (WET) EXPOSURE BREAKOUT SESSION

<u>Options from the WET Exposure Breakout Group:</u>

1. **Issue 2**: Critical flows and modeling inputs: What critical flows and types of models (e.g., dynamic models for ocean discharges) should be used in assessing exposure and beneficial use designation?

Option: Critical Flows/Modeling Input

1. Reevaluate 7Q10

Tiered Approach :

o Tiered approach to derive WET decision criteria Flow chart

o Subject: Test failed 7Q10 WET limits. Possibilities: No didn't fail the test, therefore-in compliance; Yes,failed the test and then next question becomes was the critical low flow attained. If answer is "no", then you are in compliance, however, if answer is "yes" then you are in non-compliance and you must do what the permit requires.

o low flow/rec. stream + max. flow/effluent < Test% effluent/ICQ NOEC

<u>Issue:</u> Independent application needs some type of definition/qualifications. Needs to change or modify.

Options:

o Seasonal low flow conditions in permit use of multiple receiving stream flows to establish permit conditions

o use of real time exposure permit conditions

o use of dynamic model and ambient toxicity testing to calibrate

o use of in stream mixing zone boundary samples as a permit condition

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<u>Option:</u> Seasonal limits for WET is an option. If you have an exceedance of limit, instead of assuming low flow is there-look at what the flow has actually been; look at the toxicity of the effluent at a particular time and match it to the flow at the time; limits would be set but it would be risk based on what really happened at the stream at the time.

<u>Issue 5:</u> Balancing test method dilution water with receiving water characteristics: **a)** What test species should be used when testing a freshwater discharge to an estuarine water body, especially when testing at high effluent concentrations?

<u>Option</u>: Should require more flexibility in using fresh or saltwater species. Test Species should be matched as close as possible to what is in the receiving stream.

<u>Issue 5b</u>. Will EPA reconsider the use of synthetic water which lacks the hardness, organic content, and other attenuating capacities of natural, upstream water?

o Recommend that receiving stream water or synthetic water of similar characteristics should be used in WET testing; assume controls are adequate. Have to perform test - must do one for receiving water and one for in stream.

Issue 4: Is it necessary that toxicity test method duration match expected criteria exposure duration?

Option: Yes. Guidance developed needs to allow evaluation of discharge specific time exposure related effects.

Issue 3: What are the applications (e.g., critical flows) and limitations for WET mixing zones in saltwater, freshwater, storm events, and flash floods? Should WET criteria be applied at the end-of-pipe? Under what circumstances is it appropriate to apply WET criteria at the end-of-pipe instead of allowing a mixing zone?

o No options developed for this issue just discussion on whether mixing zones were a good ideal.

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III. NPDES PERMIT GROUP A BREAKOUT SESSION

I. PRIORIZATION OF LIST OF PERMIT ISSUES COVERED IN THIS SESSION:
(Note: rank of issue per group is listed after issue [#])

Issue 1. Expression of WET limits.....[1]
Issue 2. Tiered procedures for TRE/TIEs.....[2]
Issue 3. Low Chronic Toxicity.....[4]
Issue 4. Reevaluation of toxic units.....[6]
Issue 5. Analytical variability in reporting (quantitation/detection issues)...[5]
Issue 6. Application of test methods in permits.....[3]

II. RANK ING BY PARTICIPANTS OF EACH SUB-QUESTION UNDER EACH ISSUE:
(note: symbol ">" means "became" [i.e., Question 1 > 4 means Q. 1 became Q. 4])

Issue 1:
Question 1> [4]
Question 2 > [8]
Question 3 > [3]
Question 4 > [5]
Question 5 > [1]
Question 6 > [2]
Question 7 > [6]
Question 8 > [7]

Issue 2:
Question 1 > [2]
Question 2 > was combined with subquestion 1 as new 2-2.
Question 3 > [1]
Question 4 > [4]
Question 5> [3]
NOTE: group disagreed with Q. 4 so they deleted it.

Issue 3:
Question 1>[2], however, a part a and b to the question was added as follows:
2a procedures to determine exceedance caused by test variation

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2b procedures to determine exceedance caused by treatment plant fluctuations
Question 2> [4]
Question 3 > [1]
Question 4 >[3], however, group added a part a and b to the question.
note: 4-b included the subissue of: "...procedures for TIEs/TREs to identify and remove toxicants?"

Issue 4: leave as is (no change of order)
Issue 5: leave as is (no change of order)
Issue 6: only change is question [4] was given a priority of [1] and the rest of the subissues are in the order they are: (e.g., 1 becomes 2, 2 becomes 3, and 3 becomes 4).

<u>OPTION DISCUSSION BY ISSUE</u>:

ISSUE 1-1:

o depends on ecosystem
- answer is ecosystem dependent and how often is the ecosystem a major factor (or determinative factor) How often should criteria be modified based on site specific (ecosystem) situation. Are the criteria defensible (need to keep in mind throughout process). For example this issue could factor into mixing zone considerations (where to put the discharge pipe) or with establishing the "designated use", marine vs. freshwater situations, or what's part of Ecosystem verses facility (e.g., ditches).

Group Poll: group feels we are more nervous about the ecosytem judgements at low toxicity situations (more difficult decision). Particularly where permittees are dealing with acute toxicity.

o Where is it applied? What's the multiplier?

o Make sure discharge parameter matches the situation.

o Acute - effluent dominance systems.

o Chronic - receiving water dominated systems.

o Question: Are zones of initial dilution allowed?

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ISSUE 1-2: No Max. Discharge verses minimum flow

o Exposure is often over compensated (safety factor is overcompensated)

o Is the science valid to mix exposures (re: time and dilution exposures) re: real world verses labs (waiting periods)?

o States "don't do" or "resist" Monte Carlo model.

o States, agricultural and industrial dischargers use whatever models available to ensure safety.

o more guidance on models to make permit writers & dischargers more comfortable with using the models.
- E.G. - recommend when safety factors are too much.

ISSUE 1-3:

o developed protocols in response to past concerns

o Texas does something very similar: when permittee is kicked into TIE and a permittee shows its an ionic imbalance they adjust requirement based on past tests.

o altering test species when the existing situation of the receiving water are not reflective of the selected test species (e.g., high salinity receiving water and you want to use a freshwater species such as ceriodaphnia).

ISSUE 1-4:

o Send report and "we" will evaluate it (include statistics, bench work, QA/QC, SOPs, etc.) - this enables the reviewer to identify the problem better. However, staffing is a problem (enough staff and well trained or knowledgeable staff). However one commenter said they do it with just a staff of two, however, he admitted that his staff are very knowledgeable and very dedicated.

o How realistic is whether this will be done (due to points made in above bullet) and how quickly

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and/or degree of thoroughness.

o acknowledge there is some inherent test variability

o If you barely pass/fail WET test, can you really conclude you passed/failed?

- relates to statistical power

o How do you make variability into a fair tool?

- Develop method to address variability. See Pellston chapter (recommendations) on this topic.

o Accreditation of laboratories and staff working in laboratories. Also in some laboratories, equipment failure, unnoticed equipment break down (wear out) is not tracked. Need to have QA/QC on analyzing equipment used.

o Consistent application of tests (optimize the quality of the testing)

o MDLs, PQLs - AMSA Paper

o Possible Answer to Lab issue - have an "approved lab list" if your State can't have a lab accreditation program for laboratories. Have if possible lab inspection programs.

o Implement Type I/Type II error analyses (re: statistics)

ISSUE 1-5:

o issue of time periods (48 hr, 96 hr)

o Are we artificially constraining by trying to "shoebox" into certain timeframes?

o Is daily maximum appropriate for 48 or 96?

o What else do you use?

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o Is test long enough to see endpoint?

o Tiered approach may help (cutting out redundancies)

o Tried to make WET fit the existing mold of chemical specific as outlined in Federal CFR

o Take 24 hour

o Some type of maximum value (including monthly or multiple sampling)

o definitions don't always fit science

GENERAL AFTERNOON OPENING COMMENTS FROM GROUP:
(after 1:00 pm big group meeting)

o Group need to develop the best options and go beyond just listing them or raising related or additional questions.

o Virginia, Department of Environmental Quality (VA DEQ) representative mentioned that in the 1:00 joint group session it sounded like that chemical specific limits missed "seemed" to be less of an issue then missing a WET limit.

ISSUE 1-6:

o Use designation is the underlying issue which drives the criteria.

o biocriteria triumphs bioassessment

o acute tests are a much better predictor of impact for these streams than chronic tests

o MDL substances being measured (this increases the challenge) - what happens when you get to almost no toxicity (lowest level of toxicity) - so the option is to use MDL.

o consider all three - chemically specific, biocriteria, bioassessment

o Net Environmental Benefit Approach

o Use attainability of Beneficial Uses

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o if no aquatic life designated use - then do acute only protection to satisfy protected need with respect to addressing the nuisance impact which sometimes happen in a higher flow situation for a normally low flow receiving stream (seasonal issue).

o focus WET testing on those areas that require protection- give States more flexibility to make the call on this common sense (BPJ) issue

o Still look at chronic but give allowance for Mixing Zones

o sequential failures to be a trigger (number of sequential failures allowed would have to be decided) - use the identified sequential failures number as a permit limit (in another words after so many failures then your permit limit violation kicks in).

o running median of 11 most recent tests

o Weight the Metrics - survival
- normality higher than sub-lethal, etc.

ISSUE 1-7: (combined with issue 1-6 so no more to discuss for 1-7, except items below).

o flexibility in trading low-level chronic toxicity for beneficial use

o wider assortment of quality 7Q10 streams

o [Timothy Moore] - create a system of incentives - in order to encourage permittees to provide more information - line the fine with incentives to get the positive behavior (more info and compliance) that is desired - fine causes negative pinch which results in failure to get more information

o [Bob Weaver, AMSA] - we want to solve the problem not get socked with violation or be out of compliance, put energy into correction not enforcement

o don't put tests in compliance/enforcement loop

ISSUE 1-8:

o don't use "toxicity" call it what it is (% survival, growth)

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o before change to TU(acute) - must have good reason (inherent programmatic and legislative costs if change of term is done)

o both - one for permit writers other because have to

o doesn't have to change name - doesn't matter what you call it - if out of compliance the permittee will be sensitive to it and still have difficulty of explaining the term

o if calling it toxicity, implies toxicity - name implies more than what exists

o unit measure should represent the trigger value (Bob Weaver, AMSA)

ISSUE 2-1:

o throw out permit limit - be user friendly with permit language but have the consent order provision for those 10% or so who are bad performers or don't try to fix the problem (difficult permittees). Most permittees may allow chemical specifics fines build up and pay them, BUT they don't want to go to a TIE/TRE or be done as TOXIC releasers because of the visibility to the public and environmentalists (suits).

o reopen permit and give WET limit if permittee doesn't cooperate for TIE/TRE tiered approach.

o develop generic TIE/TRE plan upon issuance of permit

o facility specific TRE strategy with time schedules

o accelerated before TRE

o examine test results to confirm for accuracy

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ISSUE 2-2: SETAC WET EXPERT PANEL

o develop check list for selecting a TIE/TRE consultant

o EPA guidance on how to address inclusive TRE

ISSUE 2-3: ANSWER- "NO" - (CONSENSUS OF GROUP)

o permittee conduct tests after completion of TRE, satisfy requirements of remaining toxicity

ISSUE 2-4:

o we assume the test species used for compliance was the appropriate species

o using other species where more efficient or there is a cost savings and gathering more information about the cause of toxicity.

ISSUE 3-1:

o provide flexibility in guidance such as pH, salinity, hardness

o summarize approved modifications of test methods, denials and list of pending items.

o seasonally adjusted IWC temperature in summer/winter temp, mini TIE, side-side temperature of RW/Temp of method (adjust test threshold limits to coincide with what's occurring in the stream in terms of RW temperatures - have a consistent ratio correlation).

o tiered approach use of weight of evidence (e.g., chemical, WET, biocriteria)

o parallel test - RW vs. SW reflect RW conditions. Part 136 method modification procedure

o including State review

o how to address controls intake vs. Lab water control, how to address when toxicity is intake water (intake credits). What are the waiver conditions in permit.

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o address intake credit in enforcement instead of permit

o don't certify the toxicity results on the DMR

o AMSA/EPA and other groups review of test method

o provide a mechanism to communicate method changes to RC (e.g., Perrier water)

o educate on the purpose of this tool

o test result could involve a narrative comment

ISSUE 3-2: Consensus - "NO"

ISSUE 3-3:

o reflect Pellston recommendation, establish upper and lower bounds

o simulate both effluent and RT data

ISSUE 3-4: No further comment, see Issue 3-1

ISSUE 4-1: "YES, this is the way it should be done." (NYS, everyone agreed).

ISSUE 4-2:

o test variation - considered in the QA/QC (control charts, RT)

o consider the approaches of Virginia, Maryland and Washington State. Also US EPA Region 9 and 10 have approaches as well as the Pellston recommendations.

o TRE/TIE; other procedures in literature

ISSUE 4-3:

o must have a toxic effluent

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o use other test methods (Microx) for identifying toxic effluent, then conduct

o tiered approach - examine instream for toxic effects; need an off ramp from TRE/TIE process.

o low level toxicity is effluent specific; cannot set an exact TU(chronic) value.

o WET equivalent MDL & equivalent PQL to trigger tiered compliance program (including TRE/TIE). This is the enforcement permit condition.

ISSUE 4-4: "YES"

o tiered approach (biocriteria, chemical)

o test not the problem but the interpretation of test result.

o deal with issues at permit level.

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NPDES PERMIT GROUP A'S PRESENTATION NOTES FOR 1:00 PM MEETING:
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o use the tiered approach in the permitting process and permit conditions, permit requirements and the enforcement

- inclusion of enforcement schedules (penalties for violation of schedule) - Permit conditions (e.g., BMPs) - tiered approach
- narrative standard for toxicity preferred
- procedures for inconclusive TIE/TREs
- post TRE options
- off ramps

o Provide Guidance & interpretation on modeling and interpretation of test methods results. Guidance on TSD approach. Also education and training to all involved.

o more accreditation of labs and staff: thru DMR approach, other forums. Keep options open on how to do this

o Do realistic RP

o Review and development of equivalent MDL for RP and equivalent PQL for triggering tiered process

o consider Pellston requirements. Specifically establish test precision criteria (both lower and upper bounds)

o wrestled with terminology (e.g., PQL/MDL)

o interpretation of results: Questionable application and interpretation of test results with respect to sensitivity and/or variability of the interpretation of the results.

o accelerated testing (keep it simple), examine chemically specific limits for exceedance "gumshoe" method.

o <u>Education of all parties</u>: in permitting process and communication is important. States and all

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other parties (regulator, permittees) need to be open and cooperate on change where change is needed. Important - group "applauds" and encourages EPA to provide training and expert systems to States, Tribes, permit writers, and permittees. Also provide boiler plate permit language, access to information (new/supportive) via telecommunications, and provide funding to support these endeavors/initiatives.

- need mechanism for communication so some of these blocker issues with respect to getting the "buy in" of all parties including States is accomplished and ensure same message to all (consistency). A common and comfortable platform which is backed by US EPA (States reluctant if not informed). Also a permitting approach which is technically understandable by all and marketable to permittees and State officials.

- communicate guidance, TSD statistical approach, policy including minimum permit language

- BBS or similar mechanism for WET

- include TSD statistical approach in calculating permit limit or monitoring requirement include effluent variability

o Flexibility in WET testing to those areas that need protection (e.g., MZ/ZID for effluent dominated, median rather than average) including application of MZ/ZID.

o How do you deal with the decision to treat? **(Blocker Issue)**

o Doesn't automatically mean build a treatment to the plant (look for the easy fixes first, do tiered approach, and work together toward a solution - may involve cost expenditure but doesn't always have to). - Not a narrow fix.

o compliance schedule for enforcement is different than compliance schedule for TRE

o flexibility in "fix-its"

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IV. NPDES PERMIT GROUP B BREAKOUT SESSION

<u>NOTE</u>: Group listed Issues/Questions according to their priority for discussing them in their session.

Issue #2: RE-EVALUATE/DEFINE REASONABLE POTENTIAL

NEW SUB-ISSUES

- Are all relevant factors being considered in reasonable potential analysis? (#4)
- Independent applicability in setting permit limits (#5)

4. Are all relevant factors being considered in reasonable potential analysis?

- Existing Controls - success of prior TREs
- Effluent Variability
- Sensitivity of species (others?)
  - recovering stream characteristics
  - bioassessment data
  - # of species
- Dilution of Effluent
  - seasonal flows
  - in stream testing

4a. Other factors to be considered

- Bioassessment data
- Nature of the discharge
- Compliance History - diligence

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- Form of Criteria
  - Chem specific limits
  - Narrative vs. numeric WET limits (potential blocker issue)

- Temperature

- Effect of natural pathogens (no discussion)

- Reasonable potential should be re-evaluated when TRE is done

Region 6 Process

- Monitoring

- Toxic Reduction Evaluations (TRE)

- Compliance schedules as allowed by State Standards

- At conclusion of TRE and compliance schedule, WET limit or chem-spec limit is set

Ohio Process

- Limits, monitoring, or no requirement based on evaluation of toxicity and in stream biosurvey data

- Periodic review of reasonable potential for dischargers

OPTIONS FOR FACTORS FOR REASONABLE POTENTIAL

- Use of bioassessment indicators (OHIO)

- Emphasize full consideration of factors in EPA regs.

- Consideration of other factors (see FACTORS TO CONSIDER)

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1. Can small data sets critically affect the flexibility available for conducting reasonable potential analysis?

- YES
- Set minimum number of data points
- Supplement data sets with other factors
- Require more monitoring by the facility where warranted
  - tailored to uncertainty
- In general, no WET limit without WET data to evaluate and permit reopener
- Flexibility in confidence levels and probability basis
- Alternate procedures (e.g., Wisconsin GLI procedures)

2. Options to account for test variability and test sensitivity

- Develop guidance on how to evaluate tests (mathematical as well as biological)
- significant test results should measured against control criteria, i.e. effluent not toxic if meets control criteria
- Establish minimum significant difference from control

3. How should habitat limited conditions be considered in reasonable potential?

- How to deal with the situation where a stream is impaired by factors beyond the control of the discharger?

Options for habitat limited conditions

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- Modify control criteria on receiving water with ambient toxicity and use receiving water as control in dilution water (measure addition of toxicity by discharger)

- Look at ratio between effluent and stream flow

- Review use designation, if appropriate

- Consider in-stream bioassessment data

5. In what cases can chem-spec limits be used as a substitute for WET limits?

- Where obvious by TIE and monitoring that toxicity is caused by a specific chemical, no WET limit would be required and where there is a narrative WET criteria

- Where chem-spec limits more accurately accounts for potential environmental impacts (e.g., ammonia toxicity)

    * Confirmation of toxicant

    * Encourage states to use narrative WET criteria to provide flexibility to use chem-spec limits

ISSUE #6 CORRELATE PERMIT LIMITS TO EXPOSURE ASSUMPTIONS

1. How could permit limits be more realistically linked to exposure assumptions?

- Account for reasonable potential factors

- Use mixing zones when allowed

- Use of an "edge of mixing zone" test to determine reasonable potential

- Use of more sophisticated modeling techniques to improve exposure assessment

- Use of bioassessment indicators to make link between effluent and receiving water

- Allow dye dilution studies to substitute for de facto 7Q10 flows

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- Give a reasonable set of exposure frequency % of time that facility can exceed a chronic limit
- Examine magnitude of event
- Clear articulation of line between permit limit and exposure assumptions
- Guidance on how to make the linkage in real world terms
- Link duration of toxicity test, duration of env. exposure, and expression of permit limits
- Guidance on effluent variability with respect to taking of 1 sample
- Implement % approach for chronic toxicity exceedances
  - consider how standards written
- Have limit reflect acceptable % as a maximum
- Set consistency of occurrence as a criteria for violation
- Promote the use of event-specific dilution in lieu of 7Q10 flow to assess actual violation

2. Should EPA encourage wider use of available exposure models? Should WET limits have mixing zones to reflect allowable dilution?

- YES
- EPA should encourage the use of available exposure models
  - use of dynamic modeling techniques
- Encouraging the use of bioassessment indicators
  - need objective biocriteria for comparison and stated endpoints

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- EPA guidance on exposure assessment issue using common scenarios and how interpret common problems
  - nature of discharge
  - other site-specific risk-based exposure assessments
  - stream discharges
  - ocean discharges
  - tidal discharges

- Better guidance on appropriate mixing zones

ISSUE #5 EPA APPROVED CHEMICALS CAUSING TOXICITY

1. How could the approval process of pesticides and other chemicals be reconciled with the permitting process?

- At registration by manufacturer, closer examination of pesticides that end up in the sewer system, including consideration of aquatic toxicity

- Interim Policy Issues
  - develop policy on how to address issue in the interim (e.g., education, BMPs)
  - WET monitoring (not limits)

- Different branches of EPA join in examining this problem

- Consider weight of environmental benefit in the permit

- How to condition permits for wastewater chemicals
  - condition to avoid critical periods
  - include monitoring requirements

- Allow dilution prior to discharge for approved pesticides
  - for non-persistent pesticides

- Closer examination of minimization, etc. response should reflect seriousness of the problem

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- If WET limit set on internal discharges, consider dilution or other factors at final discharge

- Consider 40 CFR 125.3 (flow augmentation)

- More product information on treatment chemicals that may or may not be toxic

- Nat'l Sanitation Foundation has a certification process for water treatment chemicals, could parallel this for wastewater treatment chemicals under the CWA

- Clearinghouse of information on typical chem/pest on aquatic impact
  - include data on variables altering chem toxicity

2. Can permit limits for total dissolved solids or chlorides replace a WET limit when common salts are toxicants?

- YES, but
  - confirm TDS is the only source of toxicity with TIE
  - then look at constituent ions
  - then make determination if chem-spec limits is possible

- Include flexibility for setting other limits when treatment is causing an increase in TDS in lieu of WET testing
  - if the facility is adding the TDS, it should evaluate treatment of TDS and associated environmental impacts
  - when similar TDS occurs naturally, it is an issue

- In some cases, supplemental water should be considered to reduce TDS
  - need to identify constituent ions

- consider site-spec mixing zones for TDS discharges (also ion imbalances for dischargers)

- Addition and guidance on env. nature/issues of elevated TDS in receiving waters

- Consider 40 CFR 125.3 (flow augmentation)

3. Water conservation leading to toxicity (ISSUE #3 incorporated into ISSUE #5)

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- Water conservation should be taken into account when determining compliance

- Express toxicity in toxic units and permit limits as mass units
  - upper limit based on ave. effluent flow and dilution at the edge of the mixing zone

ISSUE #4 UBIQUITOUS POLLUTANTS

1. What are effective ways in the permit process to deal with ubiquitous pollutants (e.g., diazinon, chlorpyrifos) that have been identified in the TIE/TRE process?

- See discussion under ISSUE #5

ISSUE #1 FAIR NOTICE IN PERMITS

1. Should permits contain specific language stating what the permittee needs to comply with the permit requirements (vs. providing cites to regulations)?

- YES

2. How much detail is desirable?

- Include the steps on actions to be taken based on test results (permit conditions)
  - does requiring a TIE or any other action circumvent enforcement actions?

- Include compliance schedule language to include tiered enforcement approach
  - (e.g., defining a pattern of toxicity)

- Clear language as to what type of single event constitutes a violation and/or continuing action
  - this is difficult because enforcement will want to maintain its options to enforce single permit violations

- Limit clearly spelled out, another # as average for monitoring and allow for consideration of variability on whether there is true env. impact

- Include a tiered approach, as allowed by State regulations

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- Simplify permit language toward smaller industries or municipalities

- Permit should identify
  - methods
  - frequencies
  - species
  - QA section
  - define toxicity
  - steps to be taken after the first hit
  - steps for accelerated testing
  - steps for TRE

** Considerations that are site-spec must be taken into account and guidance

** Education/training for permit writers and permittees

- Clearly distinguish TRE from compliance schedule, both may be needed

- Provide performance criteria for TRE

- Generic TRE work plans

3. Can EPA change the DMR with respect to the certification that WET results are accurate, because "there is no true value [in WET tests] from which to measure deviations and to determine bias or accuracy (54 FR 50218)?

- Want confirmation that signing of certification does not lead to liability for unknown inaccuracy in toxicity

- Revisit certification language on DMR to make consistent with technology
  - "to the best of my knowledge" language

- Careful use of term "accuracy"

- Clarification from EPA recognizing regulated community concern over accuracy of WET test

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- Encourage permittees to do QC check on labs themselves

- Statement in the permit as to what constitutes invalid test

- Encourage each state to develop QA/QC programs
  - EPA DMR QA program
  - Disseminate EPA WET Lab Audit Manual

ISSUE #7 IU WET LIMITS TO POTWS

1. Should WET limits be applied to industrial users (IUs), and if so, how can test results account for POTW treatment processes?

- NO

- Guidance on introducing known toxic discharges into sewer system

- Recommend following EPA municipal TRE manual process for municipalitieS

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V. ENFORCEMENT BREAKOUT SESSION

<u>OPTIONS FOR ENFORCEMENT OF WET LIMITS</u>:

I. Create a new strategy/status for compliance response for WET violations

WET testing is different from the chemical specific testing and there needs to be a different approach to WET enforcement. These are the reasons identified in the enforcement breakout session that make WET different from chemical specific limits.

1. The source of the toxicant and the actual toxicant causing the failure is unknown,
2. WET testing is very expensive and more time consuming than chemical specific testing,
3. NPDES permit limits are set under the assumption that the permit holder has control over the quality of the discharge,
4. the source of the toxicant may be the intake water or in the case of POTW's the incoming waste stream and the permit holder has little or no control over the source,
5. the cause of the failed test may be temporal and no longer present during the next sampling and testing or if toxicity is again detected the cause could be a different toxicant,
6. the treatment system may not be designed to remove the toxicant from the waste stream and if the cause of toxicity changes over time treatment could be difficult to affect,

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7. the test species and the test condition may not be representative of the ecosystem being protected,
8. the accuracy of WET methods is not known,
9. there is currently no mechanisms to account for variability in WET testing, and
10. the source of the toxicant is more difficult to find following a WET test failure than it is for chemical specific testing.

II. EPA's Enforcement Management Strategy could be improved by modifying it to provide guidance that considers the differences between WET and chemical specific limits. The flexibility in the current document should be retain to the extent possible.

III. Options for enforcement of numeric permit limits (assumptions for this illustration were that permit limits were expressed as TU's, and one failed WET test would result in violation)

A. 1. Further testing should be done to determine if the toxic condition persists and if it does not, then the violation should be removed.

2. Further testing should be done to determine if the toxic condition persists and If it does not, then the violation remains, but no further enforcement action is taken.

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3. The permit should be written to set forth a series of events following the failure of a WET test to determine the appropriate enforcement response. Follow up enforcement responses might be any of the following:

o further testing with more species and especially if other approved species and procedures would be more representative of the ecosystem being protected

o further testing to determine the cause of the toxicity if it persists, TIE/TRE

o further testing to determine impacts to the receiving water body using in stream sampling (WET tests on in river diluted effluent) or bioassessment methods or both depending upon the nature of the toxicity, receiving water body, and the species being protected

o further testing to determine the nature and severity of enforcement response

B. The WET test failure condition should be determined using an average or a median value and not a single value

C. A single failure of a WET test could begin a series of test (e.g., a tiered series of tests as proposed by AMSA), which could include a negotiated end point

IV. Narrative permits -- These are permits written with the conditions of the permit being a series of steps to follow once toxicity has been determined to be present in the effluent. The enforceable conditions in the permit are that the permit holder must follow the program and schedule set forth in the permit or be in violation of the permit. All options listed under the numeric permit may be applicable to narrative permits.

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